View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by Elsevier - Publisher Connector

Abstracts from the 2009 New England Society for Vascular Surgery Annual Meeting

From the New England Society for Vascular Surgery

The Vascular Repair of Aortic Transection Secondary to Trauma: A Safe and Effective Method in Patients with Complicated Injuries

R. Clement Darling III, Saum Rahimi,* Manish Mehta, John B. Taggert,* Sean P. Roddy, Yaron Sternbach, Kathleen J. Ozsvath,* Paul B Kreienberg,* Philip S.K. Paty,* and Dhiraj M. Shah, From Albany Medical College, *Albany, NY*

Objectives: Historically thoracic aortic rupture secondary to trauma was treated with cardiopulmonary bypass and open surgery. With the advent of endovascular grafting, physicians have the ability to reconstruct the thoracic aortic transection using a less invasive technique. In this study, we examine our experience with stent graft repair of thoracic transections secondary to trauma.

Methods: Records of patients treated at a level 1 trauma center were reviewed from 2006-2008. Those patients who had an aortic transection identified were evaluated for in-hospital mortality and morbidity as well as concurrent injuries. Demographics, procedural details, and outcomes were analyzed.

Results: During a 3-year period, 19 thoracic aortic transections secondary to trauma were identified in patients with a mean age of 44 years (range, 19-80 years). Primary technical success was 100%. None of the patients required explant or open repair. In-hospital mortality was 1 of 19 (5%); 18 patients had multiple trauma, including long-bone fractures. The subclavian artery origin was covered by the stent graft in nine patients. The mean estimated blood loss per procedure was 205 mL. No patient in this series suffered postoperative paraplegia. Follow-up averaged 10 months (range, 1-38 months). No late explantation or device failures have been identified.

Conclusion: Vascular repair of traumatic thoracic aortic transections can be performed safely, with a low mortality and morbidity, and should be the procedure of choice for patients presenting with traumatic thoracic aortic ruptures.

Trends and Outcomes of Endovascular and Open Treatment for Traumatic Thoracic Aortic Injury

Frederik H. Jonker,*[a] Jeanine K. Giacovelli,[b] Bart E. Muhs,[a] and Jeffrey Indes,[a] From the Yale University School of Medicine, New Haven[a]; and the Mount Sinai School of Medicine, New York,[b] *New Haven, Conn; and New York, NY*

Objectives: Data supporting endovascular thoracic aortic repair (TEVAR) to reduce morbidity and mortality for traumatic thoracic aortic injury (TTAI) is limited to case series and meta-analyses. In this study, we evaluated the trends and outcomes of open surgery and TEVAR for TTAI in New York State.

Methods: All cases of TTAI in New York State between 2000 and 2006 were extracted from the New York Statewide Planning and Research Cooperative System (SPARCS) database. A diagnosis by *International Classification of Diseases, 9th Revision*, coding of TTAI was required for inclusion.

Results: We identified 569 patients with TTAI, and 274 (48%) received surgical repair. Open surgery was performed in 238 (87%) and TEVAR in 36 (13%). Endovascular management was used during the last 2 years of the study and exceeded the number of open procedures in the last year. The overall mortality rate for the 7-year period was 11.1% in the TEVAR group and 18.1% in the open surgery group (odds ratio, 1.76; 95% confidence interval, 0.59-5.25, $P = .302$). TEVAR appeared to lower the incidence of respiratory (22.2% vs 38.7%, $P = .056$), cardiac (0% vs 5.9%, $P = .135$), and postoperative bleeding (8.3% vs 26.1%, $P = .020$) complications compared with patients undergoing open surgery. The incidence of paraplegia did not differ significantly between the groups; distal embolization was increased after TEVAR (11.1% vs 0%, $P < .001$) and endoleak occurred in 11.1%. More patients undergoing TEVAR were discharged home compared with those treated with open repair (44.4% vs 28.6%, $P = .054$).

Conclusions: Recently, there has been a shift towards endovascular management of patients with TTAI. This trend appears to result in improved mortality, morbidity, and the frequency of discharge to home. However, TEVAR may be associated with significant device-related complications.

Propensity Score Analysis Validates Findings of the VALOR Trial (TEVAR For Degenerative Thoracic Aneurysms)

Virendra I. Patel,*[a] Mark F. Conrad,[a] Christopher J. Kwolek,[a] Ronald M. Fairman,[b] and Richard P. Cambria,[a] From Massachusetts General Hospital, Boston[a]; and the Hospital of the University of Pennsylvania, Philadelphia,[b] *Boston, Mass; and Philadelphia, Pa*

Introduction: The VALOR trial reported superior outcomes of the Talent thoracic endovascular aneurysm repair (TEVAR) compared with surgery for descending thoracic aneurysms (JVS 2008;48:546-54). Data from 195 prospective TEVAR patients were compared with 189 historical surgical controls (OG) included into the trial after completion of TEVAR enrollment. Such retrospective comparisons are biased by differences among TEVAR vs OG. This applied study propensity score (PS) analysis, which reduces bias by participant matching, to validate findings of the VALOR trial.

Methods: Logistic regression generated a PS (range, 0-1) to identify characteristics more likely in TEVAR. The PS estimated the probability a patient would undergo TEVAR (eg, a PS of 0.99 = a 99% chance a patient belongs to TEVAR). PS was used to divide TEVAR and OG patients into tertiles to reduce bias. Presented are results from the middle tertile (T2), patients equally likely to be in TEVAR or OG and thus best matched.

Results: Correlates of TEVAR were smaller aneurysm, anticoagulants, no previous abdominal aortic aneurysm (AAA) repair, no peripheral vascular disease (PVD), statin use, aspirin use, older age, race, male gender, or heart failure (all $P < .05$). T2 included 68 TEVAR (PS, 0.58 ± 0.2) and 67 OG (PS, 0.46 ± 0.2) patients. VALOR reported differences in aneurysm size (TEVAR, 56 mm vs OG, 69 mm) and prior AAA repair (19% TEVAR vs 37% OG), and there were no differences in T2. All-cause mortality (ACM) and aneurysm-related mortality (ARM) rates in VALOR and T2 are presented. Age, history of cerebrovascular accident, antiarrhythmia medication, and renal disease (all $P < .05$) independently predicted ACM and ARM by regression analysis.

Conclusions: PS analysis of the VALOR trial validates both perioperative and long-term benefits (ARM) conferred by TEVAR in patients undergoing descending thoracic aneurysm repair.

Table. Mortality outcomes

	VALOR trial (all patients)			*T2 patients (PS matched)*		
Mortality	*TEVAR (n = 195)*	*OG (n = 189)*	*P*	*TEVAR (n = 68)*	*OG (n = 67)*	P
30-day	4 (2%)	12 (8%)	<.01	0	2 (3%)	<.05
ACM	31 (16%)	39 (21%)	.17	11 (17%)	10 (15%)	.8
ARM	6 (3%)	22 (12%)	<.01	0	5 (8%)	.03

ACM, All-cause mortality; *ARM,* aneurysm-related mortality; *OG,* historical surgical controls; TEVAR, thoracic endovascular aneurysm repair.

Outcome of Endovascular Abdominal Aortic Aneurysm Repair in Octogenarians and Nonagenarians: Single-Center Experience

Stuart B. Prenner,* Irene C. Turnbull,* Rajesh Malik,* Alexander Salloum,* Sharif H. Ellozy, Angeliki G. Vouyouka, Michael L. Marin, and Peter L. Faries, From the Mount Sinai School of Medicine, *New York, NY*

Objective: Compared with open repair of abdominal aortic aneurysms (AAA), endovascular repair (EVAR) is associated with decreased perioperative morbidity and mortality in a standard patient population. This study sought to determine if the advantage of EVAR extends to patients ≥80 years of age.

Methods: This was a retrospective review from a prospectively maintained computer database. From January 1997 to November 2007, 323 patients (78.6% male) aged ≥80 underwent elective EVAR. Mean age was 84 ± 3.4 years (range, 80-95 years). Mean aneurysm size was 6.2 cm (range, 2.6-11.0 cm; Table).

Results: Mean procedural blood loss was 350 mL (range, 100-2700 mL), and 16.4% required intraoperative transfusion. Mean postoperative length of stay was 2.46 days, (median, 1 day; range, 1-42 days), with 54.3% of patients discharged on postoperative day 1. There were 20 (6.2%) perioperative major adverse events and a perioperative mortality rate of 3.4% (11 of 323). Mean follow-up was 25.7 months (range, 1-110 months). Overall, 21 patients (6.5%) required secondary intervention, 6 (1.9%) underwent conversion to open repair, and 4 (1.2%) died of AAA rupture. Freedom from all-cause mortality at 1 year was 84.3%. Freedom from aneurysm related mortality at 5 years was 92.9% (Fig). Endoleak occurred in 95 patients (29.4%), with 20 type I, 44 type II, and 18 of indeterminate type; of these, 10 patients with type I endoleak underwent secondary intervention.

Conclusion: Our study supports that EVAR in octogenarians is associated with high procedural success and low perioperative morbidity and mortality. The long-term results support the use of EVAR in this patient population.